



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,358	01/22/2004	Shin Koike	247071USDIV	3263

22850 7590 11/30/2006

C. IRVIN MCCLELLAND  
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

RAE, CHARLESWORTH E

ART UNIT PAPER NUMBER

1614

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/761,358	Applicant(s) KOIKE ET AL.	
	Examiner Charleswort Rae	Art Unit 1614	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 6-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Applicant's arguments, filed 6/11/06, have been fully considered and are deemed to be persuasive. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of actions being applied to the instant application.

Receipt of the amendment filed 06/11/06 is acknowledged.

### **Status of the Claims**

Claims 6-13 are pending and the subject of this Office Action.

### **Claim rejections – 112 – Second Paragraph**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-13 are rejected under 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the confusing language " wherein a content of  $\omega$ 3 unsaturated acyl groups having at least 20 carbon atoms and monoenoic acyl groups in acyl groups consisting the diglyceride are about 15 to 89.5% by weight and about 10 to 84.5% by weight, respectively." The plain meaning of the phrase "consisting the diglyceride," suggest that it is contained within the  $\omega$ 3 unsaturated acyl groups and the monoenoic

Art Unit: 1614

acyl groups, which in the specification appear to substituent groups of the diglyceride.

Thus, these limitations are indefinite because it is not clear what the language means.

It is suggested that this rejection may be overcome by replacing the above confusing language with the following language "wherein the content of the  $\omega$ 3 unsaturated acyl groups having at least 20 carbon atoms and monoenoic acyl groups in acyl groups constituting the diglyceride are about 15 to 89.5% by weight and about 10 to 84.5% by weight, respectively." See the instant specification, page 5, lines 7-13. Applicant should be careful not to introduce any new matter into the disclosure (i.e., matter which is not supported by the disclosure as originally filed).

Claims 7-13 are rejected for the same reason stated above as they depend from claim 6 and fail to correct the deficiency of claim 6.

#### **Claim rejections – 35 USC 103(a)**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zaks et al. (US Patent 5,935,828), in view of Ono et al. (5,962,058), in view of Nomura et al. (US Patent 5,160,759), in view of Biji et al. (US Patent 6,255,505B1), in view of Barclay (US Patent 5,130,242), further in view of Brown et al. (US Patent 5,288,619), further in view of Goto et al. (US Patent 6,139,897), further in view of Del Vento (US Patent 4,701,338), and further in view of Ciani (Maurizio Ciani, Wine Vinegar Production Using Base Wines Made with Different Yeast Species, J. Sci Food Agric 78, 1998: 290-294).

Zaks et al. (US Patent 5,935,828) teach an enzymatic process for preparing an oil-based product significantly enriched in omega-3 fatty acids compared to natural marine oils (column 2, lines 14 to 16). Zaks et al. further teach that a process for preparing enriched monoglycerides, diglycerides, and triglycerides (column 2, lines 14-63). Zaks et al. also disclose that there is an established relationship between dietary marine fish consumption and reduced incidence of coronary disease and the fact that numerous studies have confirmed several specific effects of a diet high in polyunsaturated fatty acids (column 1, lines 6-13). Also, Zaks et al. teach that the unique properties of fish and marine oils which confer the health benefits are attributed primarily to two polyunsaturated fatty acids: eicosapentaenoic acid (EPA), which has a 20 carbon chain, and docosahexaenoic acid (DHA), which has a 22 carbon chain (column 2, line 66 to column 3, line 3). Although Zaks et al. teach enriched oil-based

Art Unit: 1614

products comprising polyunsaturated fatty acids, they do not teach the oil composition of the instant application. However, they do provide an expressed motivation to create enriched C20 and C22 polyunsaturated fatty acid oil-based products.

Ono et al. (US Patent 5,962, 058) discloses a foamable oil-in-water emulsion comprising a diglyceride(s) with a monoglyceride(s) and/or a triglyceride(s), wherein it is desirable to use a mixture containing a desired diglyceride in an amount of 50 wt % or more (column 4, lines 56-63). Ono et al. specifically teach glyceride compositions comprising monoglyceride (1 to 4.3 wt %), diglyceride (87.1 to 88.9 wt %), triglyceride (6.8 to 10.3 wt %), and free fatty acids (see Table 1, column 8). Clearly, the oil composition of the instant application overlaps with the oil-in-water emulsion taught by Ono et al. with respect to the total wt % of the monoglyceride, diglyceride and triglyceride components. Ono et al. further teach diglycerides consisting of saturated fatty acids moieties having from 16 to 22 carbon atoms, but they do not teach diglycerides consisting of  $\omega$ 3 unsaturated acyl groups having at least 20 carbon atoms and monoenoic acyl groups in acyl groups constituting the diglyceride of about 15 to 89.5% by weight and about 10 to 84.5% by weight, respectively, as in the instant application.

Nomura et al. (US Patent 5,160,759) is added to show the state of the prior art at the time the instant invention was made. Nomura et al. teach an oil-in-water emulsion which exhibits a rich fatty savor even at a lowered fat content and which is easily preparable. The inventors found that when the oil phase is composed of a glyceride mixture containing diglycerides in specified amounts exhibits a remarkably rich fatty

Art Unit: 1614

savor (column 1, lines 61-68). "The glyceride mixture constituting the oil phase of the emulsion composition comprises diglycerides in an amount exceeding 30% by weight and up to 100% by weight, monoglycerides in a weight ratio of 0 to 1/20 based on the diglycerides and the balance of triglycerides and has a melting point of 35 degrees Centigrade. Nomura et al. further state that it is preferable that the fatty acid residue of each of the glycerides have a number of carbon atoms of 8 to 24, still preferably 16 to 22 (column 3, lines 19-28). Someone skilled in the art at the time the invention of the instant application was made would have been motivated to combine the teaching of Zaks et al., in view of Ono et al., and further in view of Normura et al. to obtain the benefit of the rich fatty savor and the ease of preparation of the oil-in-water emulsion taught by Normura et al.

Biji et al. disclose microbial polyunsaturated fatty acid (PUFA) containing oil with a high triglyceride content (e.g. at least 90%), and a high Rancimat induction time (e.g. at least 5 hours at 80 degrees Centigrade) that can be used in foods, food stuffs or food compositions or serve as a nutritional supplement, wherein the PUFA can be a C18, C20 or C22  $\omega$ -3 and C18, C20, or C22  $\omega$ -6 polyunsaturated fatty acid (column 2, lines 50-67). "In particular the PUFA is arachidonic acid (ARA), eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA)" (column 2, lines 55-59). Although Biji et al. disclose C18, C20, and C22 polyunsaturated fatty acids, they do not disclose the acylated  $\omega$ -3 polyunsaturated and the acylated monoenoic fatty acid constituents of the diglyceride in the oil composition of the instant application. Further, Barclay discloses that it would be economically and nutritionally desirable to produce fatty acids in a

Art Unit: 1614

heterotrophic culture (column 3, lines 11-14), particularly  $\omega$ -3 polyunsaturated fatty acids for use in a food product (column 3, lines 11-14, and lines 51-67). Barclay also discloses that omega-3 highly unsaturated fatty acids are of significant commercial interest in that they have been recently recognized as important dietary compounds for preventing arteriosclerosis and coronary heart disease, for alleviating inflammatory conditions and for retarding the growth of tumor cells (column 1, lines 30-36). In addition, Brown et al. (US Patent 5,288,619) teach enzymatic methods for preparing glycerides and to design glycerides of specific composition (column 1, lines 13-15). Based on the recognized dietary benefits of polyunsaturated fatty acids in preventing cardiovascular disease disclosed above, coupled with the economic benefit of utilizing heterotrophic culture to create  $\omega$ -3 polyunsaturated fatty acids for use in a food product taught by Barclay, someone of skill in the art at the time the instant invention was made would have been motivated to combine the teaching of Zaks et al., in view of Ono et al., Nomura et al, in view of Biji et al, in view of Barclay, and further in view of Brown et al. for economic and health reasons.

Further, Goto et al. (US Patent 6,139,897) teach an oil and fat composition which lowers blood cholesterol when ingested in daily life similarly to ordinary fats and usable without posing any problem concerning appearance, flavor, heat cooking, etc. when compared with general edible fats (column 1, lines 49-57). Goto et al. further disclose a table cooking oil comprising an oil or fat composition, a food product including "the oil or fat composition, ..., and an oil or fat-processed food product 3 to 95 wt % of oil or fat comprising 15 wt % or more of a diacylglycerol and 1 to 20 wt % of phytosterol and a



Art Unit: 1614

beverage product comprising 0.2 to 10 wt % of an oil or fat comprising 15 wt % or more of a diacylglycerol and 0.2 to 1 wt % of phytosterol" (column 2, lines 46-56). Goto et al. also disclose a fatty acid composition comprising monoacylglycerols (0.4 wt %), diacylglycerols (88.3 wt %), and triacylglycerols (11.3 wt %), and free fatty acids, see example 8 (column 12, lines 1-14). In fact, the diacylglycerol content of 88.3 wt % disclosed by Goto et al. overlaps with the diacylglyceride content (of 15 to 89.5 wt %) in the oil composition of the instant application. Also, Goto et al. disclose oil and fat compositions usable in foods such as drinks, desserts, ice cream, dressings, toppings, mayonnaise, potato chips, snack cakes, cakes, cookies, pies, breads, and chocolates, and other foods including bakery mixes (column 5, lines 11 to 20). Goto et al. further teach that edible vinegar can be used to adjust the pH of the food product (column 6, line 25). Goto et al. do not teach diacylglycerols with  $\omega$ 3 unsaturated acyl groups having at least 20 carbon atoms and monoenoic acyl groups in acyl groups constituting the diglyceride of about 15 to 89.5% by weight and about 10 to 84.5% by weight, salad dressings, or salad dressings comprising wine vinegar as claimed in the instant application. However, based on the teaching of Zaks et al., someone of ordinary skill in the art would have been motivated to combine the teaching of Goto et al., in view of Zaks et al., in view of Ono et al., in view of Nomura et al., in view of Biji et al., in view of Barclay, and in view of Brown et al., to create an enriched oil composition comprising  $\omega$ 3 unsaturated acyl groups having at least 20 carbon atoms and monoenoic acyl groups in acyl groups constituting the diglyceride of about 15 to 89.5% by weight and about 10 to 84.5% by weight in order to derive the cholesterol lowering benefits of the

Art Unit: 1614

Goto et al. oil composition and its other benefits as far as being usable without posing any problem concerning appearance, flavor, heat cooking, etc. when compared with general edible fats (column 1, lines 49-55).

Del Vento teaches an oil and vinegar salad dressing food product (US Patent 4,701,338; column 1, lines 6-8 and lines 32-38). Del Vento also teaches said vinegar is red wine vinegar (column 6, lines 28-29). In addition, Ciani discloses that wine vinegar is generally recognized to have a higher organoleptic value in comparison with other vinegars (page 290, column 1, lines 6-8). Clearly, Ciani provides a motivation, or at least a suggestion, for someone of ordinary skill in the art at the time the instant invention was made to combine the teaching of Del Vento, in view of Zaks et al, in view of Ono et al., in view of Nomura et al., in view of Biji et al., in view of Barclay, and in view of Brown et al., and further in view of Goto et al. to create an enriched oil composition comprising  $\omega$ 3 unsaturated acyl groups having at least 20 carbon atoms and monoenoic acyl groups in acyl groups constituting the diglyceride of about 15 to 89.5% by weight and about 10 to 84.5% by weight in order to derive the cholesterol lowering benefits of the Goto et al. oil composition in food products including a salad dressing and a salad dressing further comprising a wine vinegar.

Thus, for the reasons stated above, someone skilled in the art would have deemed it obvious to create the instant inventive concept in view of the teachings teaching of Zaks et al., in view of Ono et al, in view of Nomura et al, in view of Biji et al., in view of Barclay, in view of Brown, in view of Goto et al., further in view of Del Vento,

Art Unit: 1614

and further in view of Ciani to arrive at the instant inventive concept with a reasonable expectation of success.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charlesworth Rae whose telephone number is 571-272-6029. The examiner can normally be reached between 8 a.m. to 4:30 p.m. Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel, can be reached at 571-272-0718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http:pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 800-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

20 November 2006  
CER

*Ardin H. Marschel 11/25/06*  
ARDIN H. MARSCHEL  
SUPERVISORY PATENT EXAMINER